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RESEARCH

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Avaliação da fragilidade em idosos participantes de um centro de convivência

Evaluation of fragility in elderly participants of a community center

Evaluación de la fragilidad en los participantes de edad avanzada en un centro comunitario

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ABSTRACT

Objective: To evaluate the existence of frailty in elderly participants of a Community Center in the city of Campina Grande/PB. **Method:** This is a descriptive cross-sectional survey conducted with 83 elderly aged 60 or more. We used a semi-structured questionnaire evaluating four of the five items of the phenotype produced by Fried et al. **Results:** The presence of fragility was observed in 6% of participants and pre-fragility in 71.1%. It was also observed that 53.01% of the elderly were overweight. Although the elderly population is active and inserted into activities that seek to improve their quality of life, it was observed that the majority is already in a state of pre-fragility. **Conclusion:** There is need to investigate the determinants of this condition and reinforce the importance of redirecting the activities offered from the needs of each individual in order to bring benefits to their physical and mental health.

Descriptors: Aging; Frail elderly; Elderly health.

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RESUMO

Objetivo: Avaliar a existência de fragilidade em idosos participantes de um Centro de Convivência na cidade de Campina Grande/PB. **Método:** Trata-se de uma pesquisa descritiva com delineamento transversal, realizada com 83 idosos com 60 anos ou mais. Utilizou-se um questionário semiestruturado e a avaliação de quatro dos cinco itens do fenótipo elaborado por Fried et al. **Resultados:** A presença da fragilidade foi verificada em 6% dos participantes e a pré-fragilidade em 71,1%. Observou-se também, que 53,01% dos idosos apresentaram sobrepeso. Apesar dos participantes se mostrarem ativos e inseridos em atividades que buscam melhorias para a sua qualidade de vida, observou-se que a maioria já se encontra em estado de pré-fragilidade. **Conclusão:** Há necessidade de se investigar os determinantes dessa condição e reforçar a importância de redirecionamento das atividades oferecidas a partir da necessidade de cada indivíduo, a fim de que tragam benefícios à sua saúde física e mental.

Descritores: Envelhecimento; Idoso fragilizado; Saúde do idoso.

RESUMEN

Objetivo: Evaluar la existencia de fragilidad en los participantes ancianos de un centro comunitario en la ciudad de Campina Grande/PB. **Método:** Se trata de un estudio descriptivo transversal realizado con 83 personas mayores de 60 años o más. Se utilizó un cuestionario semi-estructurado y evaluación de cuatro de los cinco elementos del fenotipo producida por Fried et al. **Resultados:** Se observó la presencia de la debilidad en el 6% de los participantes y pre-fragilidad en 71,1%. Se observó también que el 53,01% de los ancianos tenían sobrepeso. Aunque la población de edad avanzada está activo y se inserta en las actividades que buscan mejorar su calidad de vida, se observó que la mayoría ya está en un estado de pre-fragilidad. **Conclusión:** Hay necesidad de investigar los determinantes de esta condición y reforzar la importancia de reorientar las actividades que se ofrecen desde las necesidades de cada individuo con el fin de aportar beneficios a su salud física y mental.

Descriptores: Envejecimiento; Ancianos frágiles; Salud del anciano.

INTRODUCTION

Aging as a biological process occurs naturally and is responsible for many changes that arise in our bodies. In addition to the physiological changes, the body suffers social and cultural environment influences, which offers important contributions and should be considered in the course of aging.

It is known that, associated with the aging process, may arise various diseases and disabilities that compromise the quality of life of the elderly. These factors make it difficult and/or impossible to elderly people to exercise their autonomy and live independently. However, this natural process should not be viewed so pathological. It is also important to consider the diseases that can compromise the lives of these individuals. That way, all the mechanisms involved in the course of these changes must be observed in a coherent way, so that the elderly may have better care.

To classify an individual as elderly, it is necessary to consider the location where he/she lives. To those people who live in countries classified as northern countries – according to their social and economic criteria – people are considered elderly when they reach the age of 65. Those who live in countries of the South, are considered elderly when they reach 60 years of life.[1] It is known that the Brazilian population will pass soon by a demographic change in the elderly population and the elderly population will become bigger than that of younger people.

The increase in life expectancy raises several concerns, among them, the loss of life quality, which may be impaired as a result of the natural aging process and/or due to the appearance of chronic degenerative diseases.[2]

The growth in the number of elderly in the coming years will result in greater numbers of vulnerable individuals, this being one of the factors that increase the number of older people needing long term care.[3]

Fragility is a pathophysiological process that occurs due a series of biological changes that cause changes in various systems of the body, leading to homeostatic imbalance. These changes lead to decline in physical functioning, and the main systems that are involved in this process are those that maintain the stability in the production, distribution and use of energy. The frailty syndrome is identified by measuring a phenotype composed of five items: loss of 4.5 pounds or more in the last year, fatigue, reduced strength, low physical activity and reduced gait velocity. Thus, the elderly that present one or two changes of these items are considered pre-frail. Those who present changes in three or more are already considered fragile.[4]

Fragility is set yet as a multidimensional syndrome that involves a complex interaction of biological, psychological and social factors in the course of individual life, which can result in increased risk of vulnerability associated with the greatest risk of adverse clinical outcomes as functional decline, falls, hospitalization, institutionalization and death. So, to evaluate the health conditions of the elderly person with focus to physical changes is essential for early intervention and prevention of complications that may arise in the future.[5]

So, in order to contribute to the prevention of diseases, in the planning of actions directed to rehabilitation and, consequently, in improving the quality of life of this population, this study aimed to evaluate the existence of frailty in the elderly participants in a Living Center for Elderly in the city of Campina Grande/PB.

METHOD

It is a descriptive research with cross-sectional delimitation and a quantitative approach, carried out through the Institutional Program of Scientific Initiation (PIVIC), approved by the Research Ethics Committee of the University Hospital Alcides Carneiro, of the Federal University of Campina Grande, through the 451.851 decision.

The study was conducted in a Living Center for Elderly of the City Department of Healthcare of the municipality of Campina Grande/PB, in the period from December 2013 to March 2014. The population of the survey was composed of 315 elderly enrolled in the Living Center for Elderly. However, an average of 90 elderly people frequented the Living Center assiduously. The calculation of the sample was carried out through the OpenEpi version 3.01,[6] using 5% confidence limit, obtaining as a result 74 elderly. This value corresponds to 82,22% sample of the population considered for the study. However, the sample of the survey was composed of 83 people 60 years old or more, of both genres, chosen in a non-probabilistic way. The inclusion criteria were: people 60 years old or more, of both genres, who attended the Living Center for Elderly located in the Cuités neighborhood, in Campina Grande/PB; who ramble and have visual acuity preserved.

For data collection, it was used a semi-structured questionnaire, containing objective and discursive questions concerning socio-economic and health aspects, as well as the phenotype produced by Fried et al[4], related to the fragility that addresses the five components to be measured:

- Unintentional weight loss: ≥ 4.5 kg or ≥ 5% of body weight in the last year, which was assessed through self-report;
- Self-reported fatigue: assessed through two items contained on the Depression Scale of the Center for Epidemiological Studies-Depression (CES-D).[7] The items considered are: I felt I had to make effort to do usual tasks and I couldn't move on. For each question there were evaluated four possibilities of answers: never or rarely; a few times; most of the time; always. There were considered fragile, for this item of the phenotype, those who replied "most of the time" or "always" to any of the questions demonstrated.
- Decreased grip strength measured by dynamometer in the dominant hand and adjusted for gender and Body Mass Index (BMI);
- Low level of physical activity measured by weekly expenditure of energy in kcal (based on self-report activities and physical exercises performed) and adjusted according to the genre, evaluated through the Minnesota Leisure Time Activities Questionnaire.[8] Physical activities were evaluated for frequency and duration.
- Decreased speed of gait in seconds and adjusted for gender and height. The participant ran a distance of 4.6 m, marked on the floor with adhesive tape in a straight line and it was allowed to elderly to use walking stick.
- However, grip force was not evaluated due to the unavailability of dynamometer at the educational institution, as well as by the difficulty of partnerships with other universities. Therefore, we evaluated four items of the phenotype, allowing the identification of frailty in the elderly, since this condition is checked from three items of the present phenotype, as described by Fried et al.[4]

Data was collected in accordance with Resolution nº 466/2012, of the National Council of Health Ministry.[9] After collection, they were introduced into the software database Statistical Package for the Social Sciences (SPSS) version 17.0 and analyzed from the descriptive biostatistics (average, standard deviation, relative and absolute frequency) and analytical.

Descriptive analysis was used for the variables: age, gender, income, education, marital status, weight loss, decrease in gait speed, fatigue, low physical activity level, BMI and pathologies. In addition, the average cut was made of the weekly energy expenditure during the performance of physical and domestic activities, from the calculation of the quintile through the statistical program R.

The test t of Student for independent samples was adopted to check the differences between the averages of variable interest groups. For evaluation of the correlation between the variables of the study, we used the Chi-square test, being considered a $p < 0,05$, as confidence limit for both tests.

RESULTS AND DISCUSSION

Search sample consisted of 83 elderly, mostly retired (65,06%), with an average age of 73,9 years old (± 7,25), being 67,47% female. Studies show that the number of women attending living centers for elderly is greater, compared to males.[10-12] According to the Brazilian Institute of Geography and Statistics (IBGE),[13] in Brazil, the number of elderly women is higher than the number of elderly men, which may explain the higher prevalence of elderly participants in these services.

The prevailing income was up to one minimum wage (73,49%). This data corroborates with IBGE's,[13] since the Institute claims in his research that the per-capita income is exactly one minimum wage among the elderly. The low-income population presents greater risks of developing diseases and disabilities. In this perspective, elderly are considered as a vulnerable group, as they often live alone or in more distant areas, and these factors affect access to nutritious food, adequate housing and healthcare.[10] Thus, it is possible to realize that the living conditions of the population show up as the determining factor for the emergence of morbidities or for their prevention.

In relation to the degree of education, it was noted that the vast majority of elderly (66,27%) had incomplete elementary school, and some elderly reported, as reasons for not continuing the studies, the difficulty of access to schools and the need to have to work to help their families. It is worth noting that the low educational level limits the understanding of important information for the prevention of damage to health and hampers the dialogue between professionals and patients/users.

Regarding the elderly's marital status, the study showed that most were widowed (48,19%), and among those, the highest prevalence was among women, as shown in Table 1. In this respect, the reason men presented lower life expectancy has contributed for the greater number of widows. The factors that influence to increased male mortality are neoplasia, the problems affecting the circulatory system and respiratory system, and external causes, such as violence, for example.[14] Other factors, such as no demand for primary healthcare, cause no prevention of illnesses that may appear in these elderly people, enabling the emergence of diseases.[15] After the death of their partners, women present tendency to continue widows or living alone, and many of them consider this condition as a possibility of acquiring more freedom and autonomy.[10]

Table 1 – Distribution of socio-economic profile of elderly participants in the Living Center. Campina Grande, 2014

Age	**N**	**Frequency (%)**
60-69	24	28,60
70-79	40	48,00
80-89	19	22,80
Gender	**N**	**Frequency (%)**
Masculine	27	32,53
Feminine	56	67,47
Income	**N**	**Frequency (%)**
Up to 1 MW*	61	73,49
From 1 to 2 MW	12	14,46
From 2 to 3 MW	3	3,61
More than 3 MW	7	8,43
Education	**N**	**Frequency (%)**
Illiterate	19	22,89
Elementary School Completed	6	7,23
Elementary School Incomplete	55	66,27
High School Completed	2	1,20
High School Incomplete	1	2,41
Marital status	**N**	**Frequency (%)**
Married	18	21,69
Separated	10	12,05
Single	7	8,43
Stable union	8	9,64
Widower	40	48,19

Source: Research data

The elderly's education degree and marital status in this study resemble other surveys conducted in northeastern Brazil.[10,12] Some socioeconomic stratification mechanisms, such as income, education, gender, occupation and housing conditions are considered as health determinants or as factors that lead to inequality.[16]

For the World Health Organization, the place where the elderly is inserted contributes to changes which may arise at this stage of life. So, it is considered that the physical environment is a decisive factor both in healthy living and the emergence of problems such as isolation, depression, lower fitness and mobility problems. As people grow older, it is fundamental to offer social support, educational opportunities and protection against violence and abuse. Social factors stimulate the health, participation, safety and reduce the risk of disability and early death.[17]

Elderly's body becomes more vulnerable to any stimulus because of changes resulting from the physiological process of aging. These changes influence homeostatic mechanisms and organic function, so they become more likely to develop diseases, as well as the frailty syndrome.[5]

Fragility syndrome is a complex condition and results from the interaction of biological, psychological, cognitive and social factors. So, the identification of these factors precociously leads to the development of interventions and more effective action.[18] There is a hypothesis that there may be two ways by which the elderly becomes brittle. The first of them would be on the physiological changes of aging and the second would be through the emergence of serious illnesses or comorbidities.[4]

However, there is a lack a consensus regarding the definition of frailty syndrome, which leads to the existence of few data reflecting the incidence and prevalence of this syndrome in elderly of different populations. But it is known that this syndrome is related to the presence of comorbidities that accumulate throughout the aging process, and is associated with the age of the individual, but does not result solely from that process.

We identified the presence of fragility in five (6%) of the participants, and the pre-frailty in 59 (71,1%) of them. When it comes to frequency of fragility or pre-frailty in relation to gender of the respondents, it was possible to observe that among 56 women, 11 were not fragile, 42 were pre-frailty and 3 were fragile. As for the male, among the 27 participants, 8 were not fragile, 17 were pre-frailty and 2 were fragile. Among the indicators evaluated, the prevalent in both genres was decreased gait speed (43,4%), which showed an average of 6,93 m/s (± 1,75). And the least frequently was weight loss (9,6%), as shown in Table 02.

Table 2 – Indicators of Frailty in Elderly. Campina Grande, 2014

Weight loss	**N**	**%**
Yes	8	9,6
No	75	90,4
Fatigue		
Yes	30	36,1
No	53	63,8

(To be continued)

(Continuation)

Decrease in gait speed	N	%
Yes	36	43,4
No	47	56,6
Low level of physical activity		
Yes	16	19,3
No	67	80,7
Levels of frailty		
Not Fragile	19	22,9
Pre-fragile	59	71,1
Fragile	5	06

Source: Research data

In a study carried out by the Studies Network on Fragility in Elderly Brazilians (FIBRA Network), it was observed that the most common indicator was the fatigue, which differs from our research. However, the weight loss was shown to be less frequent in both studies.[19]

Disabilities and comorbidities that arise in old age should be considered as distinct conditions in relation to fragility, however, they can occur at the same time. In this sense, there was also the presence of diseases among the elderly, which were evaluated through verbal reporting, being the most frequent, hypertension (59,5%), diabetes mellitus (17,9%); arthrosis (7,1%); osteoporosis (5,9%) and hypercholesterolemia (5,9%).

National data show that diseases such as hypertension and diabetes show up as the main causes of elderly's hospitalization, occurring mainly for women.[14] Furthermore, arthritis and rheumatism are also quite frequent in this stage of life.[13] As the individual ages, the greater is the risk of developing some chronic disease, and hypertension appears as the health problem that most occurs among seniors of all ages.

Hypertension and diabetes are comorbidities that are strongly associated with the population lifestyle. However, healthy habits such as proper nutrition and physical activities can contribute to the prevention of these and other diseases that often arise with the advancement of age. Therefore, the assessment of physical health conditions serves as an indicator to reflect the respect of physiological and pathological processes involved in the development of these diseases and the functionality of each individual.[18]

Studies show that there are frequent association between the cases of these two diseases and the presence of overweight in the elderly.[20,21] A parameter rather used for classification of nutritional status of the population is the Body Mass Index (BMI). From this calculation, a classification established for the elderly is assigned, to check whether they are inside or outside of the recommended standards.

For the World Health Organization, the overweight, as well as obesity, are considered important public health problems, being responsible for the five leading causes of death in the world, and presenting itself as the third cause in developing countries.[22] As regards the elderly person, the prevalence of overweight and underweight can be explained through the environmental, cultural and socioeconomic conditions of each municipality, and these factors can have an impact on the lifestyle of each of them.[21]

National Research Data on Health and Nutrition (PNSN), held in all Brazilian regions, found a prevalence of overweight to 30,4% in men and 50,2% in women, being the problem prevalent in females.[23] Other studies held with elderly people also showed that women have a higher frequency of overweight when compared to men, in the same age group.[24,25]

In this study, it was observed that 53,01% of the elderly presented Body Mass Index (BMI) ≥ 27; 33,73% $22 < BMI < 27$; and 13,25% BMI ≤ 22. The average weight for the female was 62,2 Kg (± 10,1) and for males was 67,0 Kg (± 11,5). The average height for women was 1,50 m (± 0,07) and for men was 1,62 m (± 0,06). Among the items of the phenotype scrutinized, the weight is considered essential information, especially if there is loss of 5% of its total over the last year, as describes Fried et al.[4]

Frailty relates to different types of body composition and is indicated by low values of BMI.[26] Despite the aging process encouraging older people to become more vulnerable to low weight, due to changes in physiological condition such as reduction of height, change in amount and distribution of the subcutaneous adipose tissue and reduction in muscle mass, in this study it was possible to find out that most of the elderly presented overweight, even though most of them are classified as pre-fragile. This data points to the need of investigating the reasons that are leading to the development of this condition.

The BMI average for women, in the present study, was of 27,4 Kg/m^2 and for men was 25,9 Kg/m^2, as described in Table 3. Excess weight is found with more prevalence among women, showing a reduction as advancing age occurs in both genres. It is also possible to observe that overweight is associated with a positive history of diseases such as diabetes, hypertension, dyslipidemias, arthritis, arthrosis and polypharmacy.[25] Weight presents decline with advancing age, and usually vary between genres. In men it presents a plateau at 65 years old, and begins to reduce from then on. In women, this same plateau is only reached at 75 years old.[27]

Table 3 – BMI distribution according to age and gender of the respondents. Campina Grande, 2014.

Age group	$\overline{X}$ Bmi (kg/m ²)	Gender
60 to 69 years old	28,1 Kg/m²	
70 to 79 years old	27,1 Kg/m²	F*
From 80 years old	26,9 Kg/m²	
$\overline{X}$Total	27,4 Kg/m²	
60 to 69 years old	27,3 Kg/m²	
70 to 79 years old	25,8 Kg/m²	M**
From 80 years old	25,6 Kg/m²	
$\overline{X}$Total	25,9 Kg/m²	

Source: Research data, 2014.

*Female, **Male

$\overline{X}$Media

A survey conducted to assess the nutritional status of the elderly explains that the female gender, illiteracy, chronic disease and low purchasing power, increase the nutritional risks. These results enable us to observe that the socioeconomic conditions exert important influences on the nutritional status of elderly people.[24] The trend that older women present to accumulate more abdominal fat, have differences in food intake and have greater life expectancy, when compared to men, may be a possible explanation for the higher prevalence of overweight.[23]

Study showed that elderly overweight compared to normal weight and low weight people, at the same age, were more likely to functional disabilities. It was noted also that these seniors took more time to carry out test where they should walk three meters.[28]

Aging causes the steps of the elderly to become more slow and short, and this is due to the search for better stability and balance.[29] In addition, the loss of muscle mass and strength are described in other studies as factors that influence the speed of the march.[4,18,30] However, in this study it was observed that there was no statistical significance between the variables of age and reduced gait velocity (p = 0,365).

Among the elderly who have overweight (BMI ≥ 27), it was possible to observe that 88.6% were classified in the group of elderly people who perform physical activities routinely. This data leads us to reflect on two aspects, the eating habits and the practice of physical activities among these elderly people, since this population is overweight and at the same time perform daily physical exercises.

Such fact would have two possible explanations: the first would be linked to cultural influence, where these seniors were accustomed to a plentiful supply due to caloric expenditure that demanded the labor activity held by them when young as, for example, agriculture. Although not exercising these activities any more, the elderly remained with the same eating habits, which could explain the increase in body weight. The second would be related to physical exercise, which would supply the calorie gain, since many seniors choose to perform these exercises as a form of leisure, therefore not being performed more intensely, making it impossible to maintain an appropriate weight.

In this context, it is worth reinforcing that physical activity programs targeting the elderly should be performed efficiently from the development goals that seek to improve their physical capacity, especially for those with more age, making them aware of the importance of this practice for the improvement of their life quality.[31]

Studies come pointing frequently the number of sedentary elderly, however, this information differs among other surveys.[32,33] A sedentary lifestyle is considered an important risk factor for the emergence of chronic non-communicable diseases and must be fought primarily on the most vulnerable populations, such as those considered to be of low income.[33]

A sedentary lifestyle can occur by several factors, among them we can mention the lack of habit of performing physical exercise, lack of encouragement from people nearby, or even due to functional limitations that older people have to practice this type of activity. These conditions can lead to weight gain, bringing even more serious complications. The research warns that studying existing associations between functional disability and the nutritional status of the elderly is fundamental to the understanding of how these individuals are living.[28]

Scholars point to the need of knowing more about aging and the effects and impacts that may be caused to the healthcare system in Brazil, in view of the expected growth in the coming years. Experts point out that healthcare promotion can minimize the impacts that can be triggered at healthcare services.[23] In this respect, it is worth pointing out that the weight control and disease prevention, as the individual ages, are quite important for the elderly to maintain a healthy lifestyle.[25]

From the application of the t test, we found significant difference among the variables of age and low level of physical activity (p = 0,016), reinforcing evidence that the higher the age of the individual, the less is the practice of physical activity performed. However, there was no significant difference between the variables of gender and low level of physical activity, but this condition between genres usually vary according to each studied population.

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Besides that, aging causes the steps of the elderly to become more slow and short, and this is due to the search for better stability and balance.[29] In addition, the loss of muscle mass and strength are described in other studies as

factors that influence the speed of the march.[5,18,30] However, in this study it was observed that there was no statistical significance between the variables of age and reduced gait velocity (p = 0,365).

CONCLUSION

Living centers are great spaces for the development of activities aimed at improving the life quality of elderly people, with regard to social interaction, participation in leisure activities and the development of physical activities. However, it is essential to carry out an efficient activities planning for these people.

Despite the elderly participants at this study showing active and being inserted into several activities, it was noted that the majority of them is already pre-frailty, which strengthens the importance of reviewing and monitoring their eating habits and the way the physical activities are being carried out, in order to bring benefits to their physical and mental health.

It was found that much of the population studied is in an overweight situation, although they are not classified as sedentary. Therefore, for the harms associated with frailty syndrome be prevented, it is essential to invest even more in services that provide more than leisure, healthcare education, physical exercises, healthy eating and multidisciplinary periodical monitoring, from planned actions by professionals and carried out effectively by the elderly population.

There is still no uniform explanation of the factors that cause changes to both gain as loss of weight in elderly people. This is happening because of the limitations presented by cross-sectional surveys. Given this, there is the need for longitudinal studies to better evaluation of the factors that lead many seniors to present overweight or weight reduction, even if they are exposed to the same social and economic conditions.

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